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Forest Insect Laboratory
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Forest Insect Hazard Inventory

PHOTOGRAPHIC SUPPLEMENT

Eastern Plumas Area

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Forest Insect Hazard Inventory
PHOTOGRAPHIC SUPPLEMENT
Eastern Plumas Area

The purpose of this supplement is to present some of the photographic material[1/] taken during and shortly after the field work of the Forest Insect Hazard Inventory in the Eastern Plumas Area, Plumas County. The results of this study have already appeared[2/] and should be consulted for a more accurate description of the area and for the statistical results of the study.

No attempt is made here to tell the complete story of the pine beetle in this area by means of the following illustrations. A few views are presented to acquaint one with the types of stands encountered. After these a series high-lighting some of the difficulties which pine beetles offer to the successful practice of forestry in the Plumas stands. Finally, several scenes showing what is being done to counteract the beetle problem.

The photographs in some instances are lacking in a certain amount of artistic sense and expert manipulation which only the professional can give, and which the field man who is faced with the task of obtaining his own pictures too often misses. It is hoped, however, that enough salient points have been captured by the camera to enable the reader to grasp some of the significance of the insect problem which is ever-present in the Plumas and other eastside pine forests of northeastern California.

1/ Figures 6 through 13 are by K. A. Salman; all others by the author.

2/ "Bark beetle hazards in the pine stands of northeastern California; Parts I and II." Miller, J. M., K. A. Salman, and P. C. Johnson. Berkeley, California. May 15, 1941. (Multilithed)

STAND CHARACTERISTICS OF THE EASTERN PLUMAS AREA

Figure 1.-- Some of the features which distinguish the forest cover of the Eastern Plumas Area are evident in this general view -- the rolling timbered slopes separated by grass- or sage-covered flats, the absence of timber on the higher peaks, the patchy stands of the Little Last Chance country, and the scattered mixed coniferous stands along the escarpment south of Honey Lake.

The reporting area, of which about two-thirds is shown here, includes the Eastern Plumas Working Circle, the Little Last Chance Unit, and the escarpments facing Honey Lake, Long Valley, and Sierra Valley. Most of the remaining virgin pine in the reporting area is visible in the panorama.

The photographs were taken from Black Mountain Lookout Station. The following points have been located for purposes of orientation:

1. Little Last Chance Valley
2. Adams Peak
3. Dixie Mountain
4. Crocker Mountain
5. Squaw Valley Peak
6. Last Chance Creek
7. Mt. Engels
8. Thompson Peak
9. Laufman Ranger Station
10. Milford (town)
11. Honey Lake

SCATTERED PINE ON THE DIXIE VALLEY-FRENCHMAN CREEK DIVIDE

Figure 2.-- Looking south from Dixie Mountain toward the divide (low timbered ridge in center of photo) between the upper extremity of Dixie Valley (right) and the Frenchman Creek drainage (left over near shoulder of Dixie Mountain). The slopes of Reconnaissance Peak in the left distance have been practically denuded by fires which have swept over the peak from Sierra Valley to the south.

The timber shown in the right half of the photo includes most of the Hazard III (moderate beetle hazard) stands in Dixie Valley. This stand covers near 4,000 acres and averages over 19,000 board feet of Jeffrey and ponderosa pine per acre. Nearly 2,500 board feet per acre, or approximately 10.8 percent of the pine stand, has been killed by pine beetles since about 1925 and at present green pine trees amounting to nearly 1,000 board feet per acre have been classed as high beetle risk trees.

PINE IN THE LITTLE LAST CHANCE

Figure 3.-- Looking northeast from Dixie Mountain into one of the few sizable stands of virgin pine in the Little Last Chance Unit. The canyon is unnamed, but it is traversed for almost its full length by the road from Ramelli Dairy to Dixie Mountain. A few facts about this stand are given below.

Average stand per acre, 3-needle pines	11,500 b.m.
other species	6,000 b.m.
Pine timber killed by beetles since 1925, average per acre	1,900 b.m.
Volume of high risk trees in present pine stand, per acre	665 b.m.
Beetle hazard	Moderate (III)

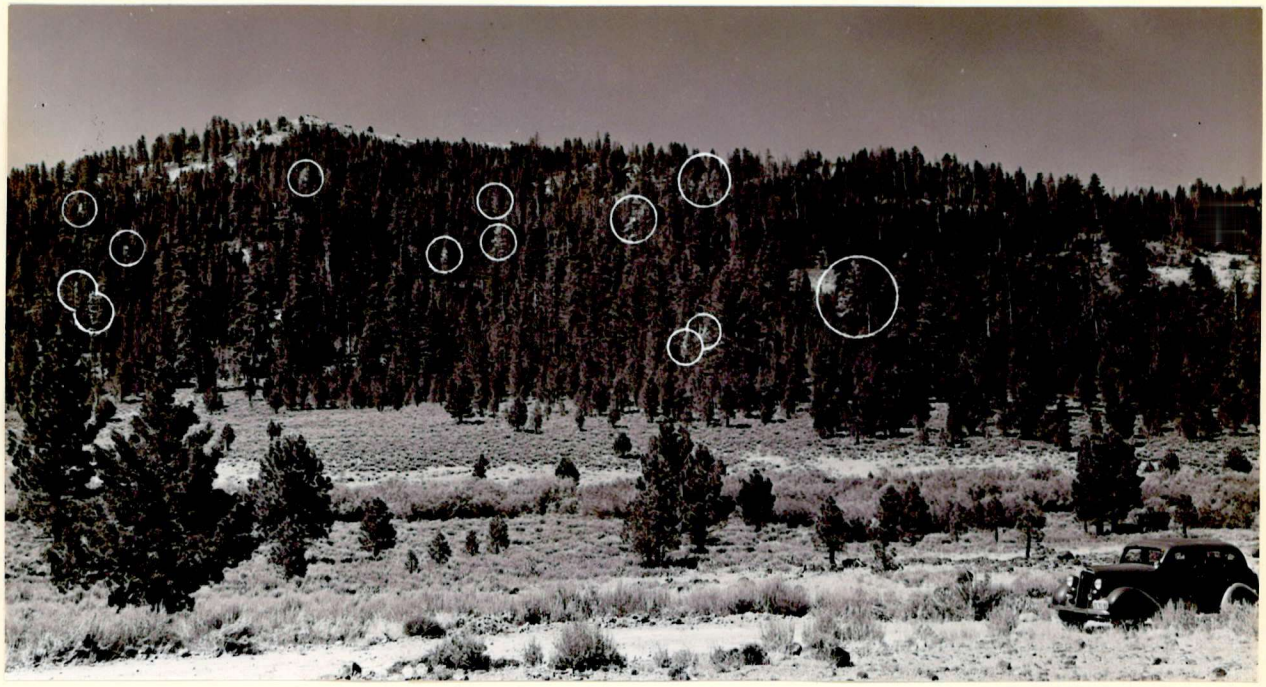
Current pine beetle activity is not great though a small concentration of "red tops" may be seen on the southeast exposure just above the rocky knoll in the left center.

THOMPSON CREEK'S VIRGIN STANDS

Figure 4.-- One of the finest pine stands in the Eastern Plumas area, a small portion of which is pictured here, is that found in the Thompson Creek drainage. Composed almost entirely of mature and over-mature Jeffrey and ponderosa pine it somehow has escaped the heavy beetle-caused timber depletion which has visited many another eastern Plumas stand.

The pine stand shown above is located just east of Frazier's Cabin. In 3-needle pine content alone it averages over 22,000 board feet per acre. Losses from beetles since about 1925 have averaged a little more than 7 percent of the stand and the high risk volume today is less than 6 percent of the stand. It is one of the very few commercial pine stands in northeastern California to be given a Hazard II (low) beetle rating by the Inventory.

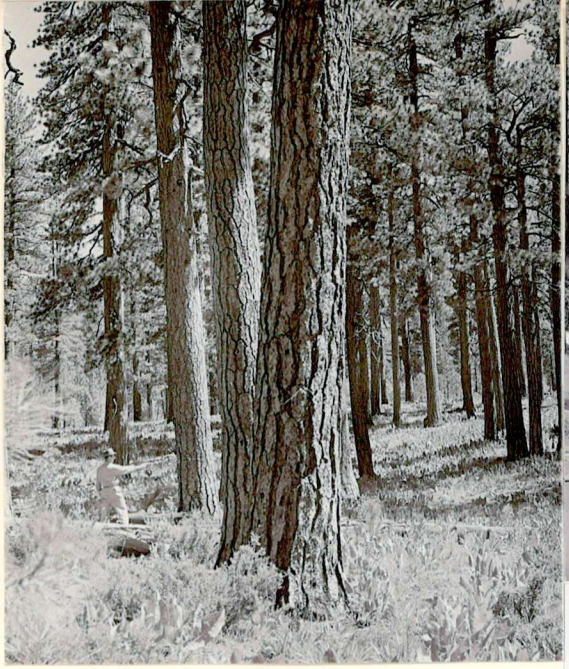
BEETLE LOSSES IN COMMERCIAL STANDS



Not every eastside pine stand burdened by a high beetle hazard rating is good commercially, but in Dixie Valley there is such a stand. Timber values are high, the beetle hazard is high. Present beetle-caused losses are numerous throughout the stand as indicated in Figure 5 (above). Each pine tree killed during 1939 and the spring of 1940 has been circled. Some circles contain several trees. This is the stand on the south side of Dixie Valley midway between Squaw Valley and the Frenchman Creek divide.

Figure 6 (right) shows evidence of past beetle activity which, in this particular spot on the north side of Dixie Valley, has materially reduced the timber values by killing a number of the largest trees in the stand.

There were 208,000,000 board feet of pine in Dixie Valley in 1925. There are 170,000,000 feet of pine today. In order to forestall any further beetle depredations, the Forest Service, in cooperation with the Clover Valley Lumber Company, began a program of control during the summer of 1941. How this is being accomplished is explained on the following two pages.



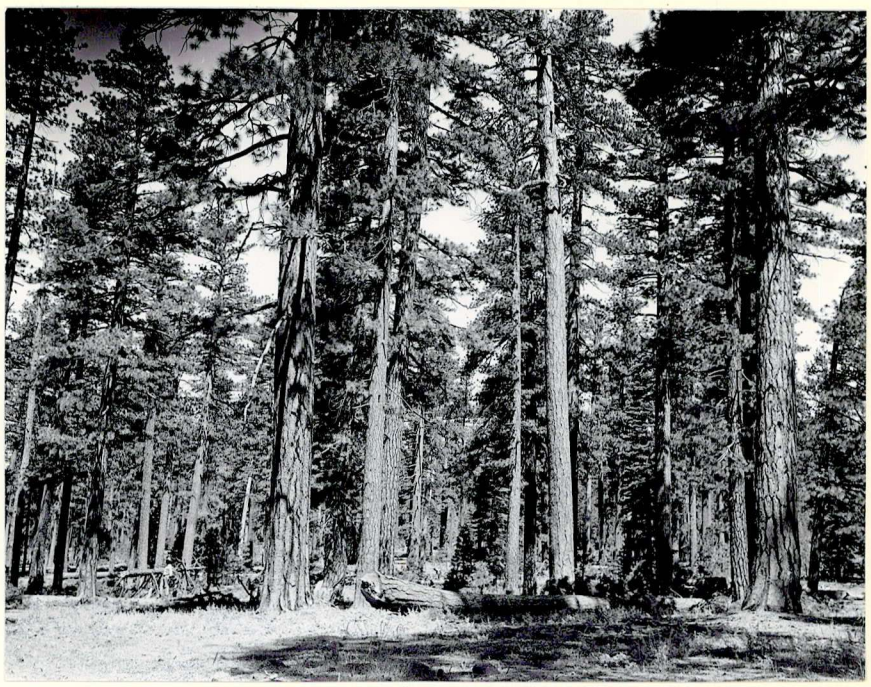
CUTTING FOR CONTROL

Sanitation-salvage cutting is an indirect method of bark beetle control. its purpose is to remove from the stand all "high risk" pine trees -- trees normally selected for attack by pine beetles -- before they are attacked. This provides a two-fold objective of (1) removing a necessary adjunct to continued beetle losses and (2) providing a means of revenue to offset the cost of the operation.

These scenes depict the various stages of the operation. In Figure 7 (upper left), the high risk trees are located and marked. They are then felled and skidded to truck landings on nearby roads (Figures 8 and 9, Upper right). Finally, they are bucked into log lengths, hauled by trucks to the mainline logging railroad (Figures 10 and 11, lower right), and taken into the sawmill to be turned into lumber and other forest products. The value of these high risk trees is seldom below that of the entire stand and in many cases it is greater.

A STAND IMPROVED

A total of about 21,000,000 board feet of pine is being removed from 7,000 acres of high hazard lands by the Dixie Valley sanitation-salvage program. This represents an over-all average of 25 to 30 percent of the stand, but this figure varies greatly throughout the area. The photographs illustrate the varying intensities of cutting as determined by the number of high risk trees per acre and other silvicultural or economic considerations.



In Figure 12 (above) the stand -- heavy, on a good site, and of only moderate beetle hazard -- has been cut very lightly. Heavier cutting was done in the stand pictured in Figure 13 (below) because in this particular small area the activity of beetles has been greater (as evidenced by the numerous beetle-killed snags) and the high risk trees were more plentiful. Not shown are several small areas where full cutting (up to 65 percent of the stand) was accomplished. This was done in the light, more inaccessible stands on poorer sites which are invariably more susceptible to beetle attacks and which, if lightly cut now, would not justify the return of logging equipment at a later date even if the stands should survive heavy depletion from beetle infestations.

The immediate effect of sanitation-salvage cutting is similar in many respects to that resulting from stand thinning. The undesirable elements in the stand have been removed leaving the healthier trees with greater capacity for survival. The more distant effect of the cutting is the hoped-for reduction in timber depletion caused principally by pine beetles.

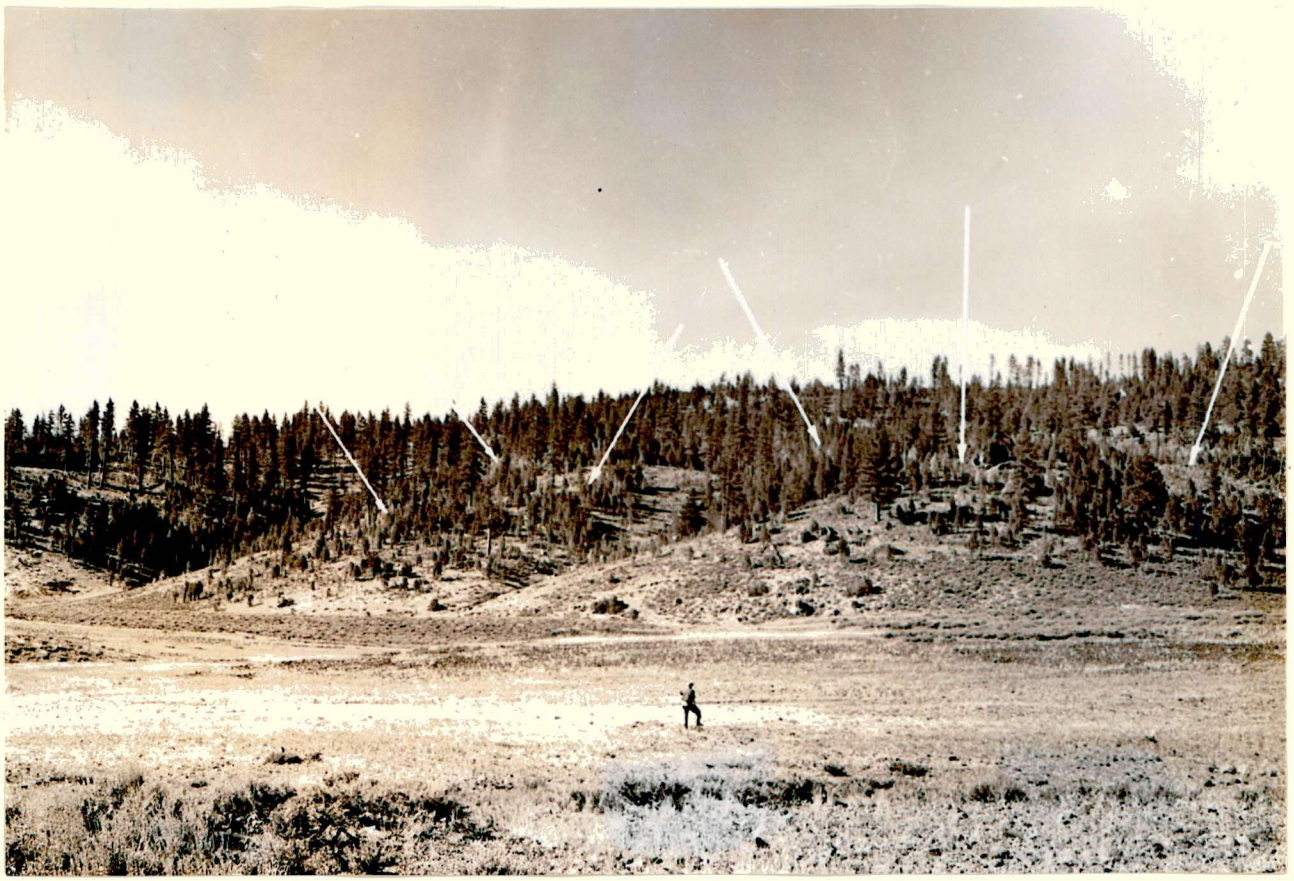
BUG-PROOFING CUTOVER RESERVE STANDS

These two photographs show what is being done on regular logging operations to insure the reserve stands against future depletion by beetles. Only low risk trees remain in the upper photo (Figure 14) following logging. The mature tree still standing in the left center went to the beetles instead of the logger and is now dying as indicated by its fading foliage.

The lower picture (Figure 15) shows an example of a Dunning class 5a tree now being left in many east-side Forest Service sale areas as a source of future quality timber. Naturally, only beetle-resistant trees can qualify for this purpose.

Both views were taken on the Clover Valley Lumber Company operation near West Dairy. Marking was under the supervision of the Plumas National Forest.

SOME PROBLEMS OF CUTOVER STANDS



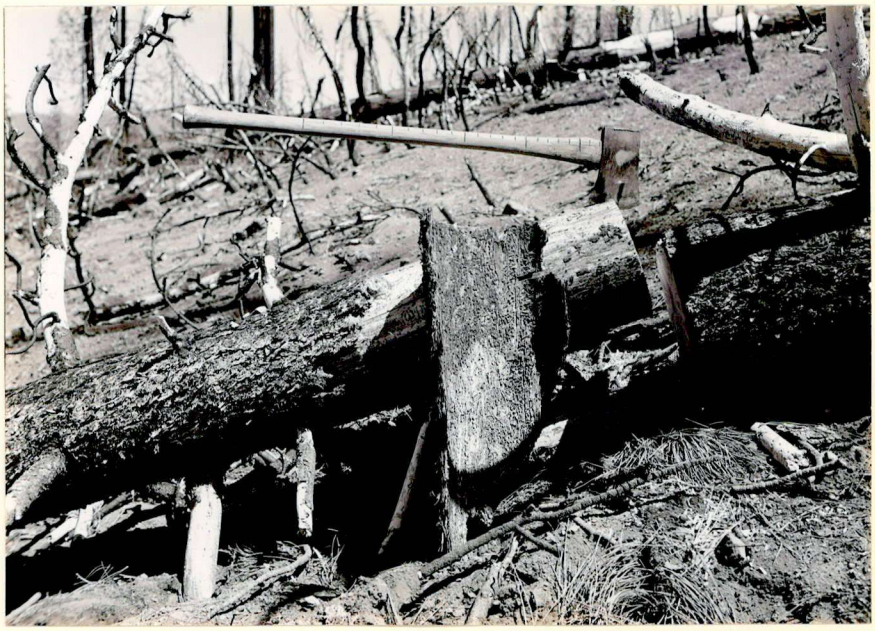
The care which goes into the selection of cutover reserve trees such as are shown in the figures on page 9 is sometimes nullified by the subsequent destruction of those trees. The most common destructive agencies in the eastside are fire, insects, or wind. Recently fire and insects together helped destroy several hundred acres of cutover pine land containing about 2,000 board feet of thrifty pine per acre.

During the summer and autumn of 1939 exceptionally heavy broods of the Oregon pine engraver beetle, Ips oregoni Eichh., developed in fresh slashing on the north side of Squaw Valley. Considerable damage resulted when these beetles emerged from the slashing and attacked and killed groups of pine reproduction nearby. These patches of dead reproduction are shown by arrows in Figure 16. In other surrounding areas this abnormal beetle population was either absorbed by slashing or died out with no further damage.

About this time, however, a forest fire occurred about one mile distant from the area shown in Figure 17. Several hundred acres of seed trees were badly scorched. Late in the autumn of 1939 these scorched but living trees were attacked by the emerging brood of Ips beetles from the infested reproduction. Because the foliage was already scorched, any tell-tale fading of the foliage went unnoticed.

During the spring of 1940 an attempt was made by the Forest Service to salvage the scorched trees. After some roads had been constructed and the initial trees felled by the contractor the project was abandoned when it was found that nearly every seed tree not burned outright has been infested with heavy broods of Ips. Bluestain was so far advanced that any further salvage for lumber purposes was out of the question.

A general view of the burned area showing the first of the felled trees may be seen in Figure 17 (above). A close-up of the inner bark of one of the trees (Figure 18, below) shows the numerous galleries made by the brood. Ips broods infested the upper halves of the boles while secondary insects entered the lower bole.



Fortunately, such unpredictable outbreaks by Ips are not frequent. The usual role of these insects is secondary. Even in the above case it is doubtful if their attacks could be classed as anything but secondary in view of the fire-weakened condition of the trees.